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REMARKS

Summary

This Amendment is responsive to the Office Action mailed on March 26, 2003. Claims 1, 2, 4, 6-8, 10, 11, 13, 15-17, 27, 37, 47, and 52 are amended. Claims 5, 14, 29 and 39 are cancelled. Claims 1-4, 6-13, 15-28, 30-38, and 40-56 are pending.

Claims 2-4, 11 and 13 are objected to based on certain informalities. In particular, the Examiner has indicated that the term "said EPG" in claims 2, 4, 11 and 13 lacks antecedent basis. The claims are amended herein to provide proper antecedent basis for "said EPG" as required by the Examiner. Withdrawal of the objection is respectfully requested.

The Examiner has objected to the drawing as failing to show every feature specified in the claims. Applicant submits herewith a replacement drawing for Figure 1, along with a new Figure 2. Figure 1 is amended to specify that the television signal 15 includes at least one of television program data, commercial data, EPG data, end of program notifiers, ATVEF triggers, program identifiers, and VCR plus codes. Figure 1 is also amended to specify that the storage device 60 is a segmented storage device, enabling the separate storage of non-program specific content. Figure 1 is further amended to show the user interface. A new Figure 2 is provided which comprises a flowchart illustrating the details of Applicants' method claims.

Approval of the proposed corrections to Figure 1 and the New Figure 2 is respectfully requested, together with

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the withdrawal of the objections to the drawings. If the Examiner has any questions regarding the drawing corrections or the new Figure 2, or requires any further changes to the Drawings, he is requested to contact Applicants' undersigned counsel.

The specification is amended herein to conform to the amendments to Figure 1 and the new Figure 2. No new subject matter has been added by the amendments to Figure 1, the new Figure 2, or the amendments to the specification.

Claims 1-3, 5-6, 8-9, 10-12, 14-15, 17-18, 47-48, 50-53, and 55-56 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Bodkin (WO 01/11865).

Claims 19, 22 23 and 26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Schindler (US 5,995,155).

Claims 4 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bodkin in view of Schindler.

Claims 7, 16, 49, and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bodkin in view of Knudson (US 6,141,488)

Claims 27-28, 29, 30-31, 33-34, 36-38, 39, 40, 43-44, and 46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bodkin in view of Barton (US 2001/0049820).

Claims 32 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bodkin in view of Barton and Goldschmidt Iki (US 6,226,444).

Claims 35 and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bodkin in view of Barton and Knudson.

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Claims 20 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schindler in view of Bodkin.

Claims 21 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schindler in view of Goldschmidt Iki.

Applicants respectfully traverse these rejections in view of the amended claims and the following comments.

Discussion of Amended Claims

Claim 1 is amended to include the subject matter of claim 5. Claim 5 is cancelled to avoid duplication of claimed subject matter.

Claim 10 is amended to include the subject matter of claim 14. Claim 14 is cancelled to avoid duplication of claimed subject matter.

Claim 27 is amended to include the subject matter of claim 29. Claim 29 is cancelled to avoid duplication of claimed subject matter.

Claim 37 is amended to include the subject matter of claim 39. Claim 39 is cancelled to avoid duplication of claimed subject matter.

Claims 47 and 52 are amended to specify that the end of program notifier is part of said television signal.

Claims 2, 4, 6-8, 11, 13, and 15-17 are amended to overcome the informalities noted by the Examiner and/or to conform to the amendments to the independent claims.

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Discussion of Prior Art

The Examiner has rejected independent claims 1, 10, 47, and 52 as being anticipated by Bodkin. Claims 1 and 10 are amended to include the subject matter of claims 5 and 14, respectively. Claims 5 and 14 were also rejected by the Examiner as being anticipated by Bodkin.

Claims 1, 10, 47, and 52 now each specify that an end of program notifier is provided in the television signal which identifies the end of the program and the recording continues until the end of program notifier is received. Bodkin discloses "skip" signals indicating the start or end of parts of the programming which are segmented by commercial breaks. During recording, the HDR of Bodkin records the skip signals along with the program content. During playback, a user may select a skip mode, such that the processor responds to the stored skip codes so that, for example, commercial content can be skipped during playback (Bodkin, page 23, lines 5-22).

The skip signals of Bodkin are therefore significantly different than the end of program notifiers claimed by Applicants. First, the skip signals of Bodkin only identify the start or end of parts of program segments separated by commercial breaks and are used to enable a user to skip playback of such commercial content. In contrast, the end of program notifiers claimed by Applicants identify the actual end of the program, not the end of a program segment as in Bodkin. The end of program notifiers set forth in Applicants' claims are used to signal the PVR to terminate recording of the program. Second, the HDR of Bodkin continues to record even when the skip signals are

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received. In contrast, when the end of program notifier is received by the PVR in Applicants' claimed invention, recording is stopped. The skip signal of Bodkin is used to limit what is played back to the user after recording. In contrast, with Applicants' claimed invention, the end of program notifier is used to indicate that a program has ended so that recording may be discontinued.

Bodkin does not disclose or remotely suggest an end of program notifier in the television signal which identifies the end of a program, as claimed by Applicants. Further, Bodkin does not disclose or remotely suggest that recording of the program is continued until the end of program notifier is received, as claimed by Applicants.

Claims 6, 15, 48, and 53 specify that the end of program notifier is provided in one of ATVEF trigger information, a vertical blanking interval of an analog television signal, or a program identifier of a digital television signal. The Examiner indicates that claims 6, 15, 48, and 53 are anticipated by Bodkin. As discussed above, Bodkin does not disclose end of program notifiers as claimed by Applicant. Further, Bodkin makes no mention whatsoever of ATVEF trigger information. In addition, Bodkin provides no information regarding the location of the "skip signals" in the television signal. Bodkin only indicates that the skip signals "are time coded-based and are transmitted in each channel together with the television signals".

Bodkin does not disclose or remotely suggest that an end of program notifier is provided in one of ATVEF trigger information, a vertical blanking interval of an analog television signal, or a program identifier of a digital

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television signal, as set forth in Applicants' claims 6, 15, 48, and 53. Similar arguments are applicable to claims 34, 36, 44, 46, which have been rejected based on a combination of Bodkin and Barton.

Claims 7, 16, 49, and 54 are rejected based on the combination of Bodkin and Knudson. Claims 7, 16, 49, and 54 specify that each program has an end time and that the PVR waits a predetermined amount of time after the end time to receive the end of program notifier. Recording is terminated at the first to occur of either lapsing of the predetermined amount of time or receipt of the end of program notifier. Therefore, with Applicants' invention, it is ensured that the entire program is recorded.

Bodkin does not address the issue of ensuring that the entire program is recorded. As discussed above, the skip signals in Bodkin are used only to avoid the playback of commercial content, and do not provide a notification of the end of the program.

Knudson discloses that previously known program guide systems have recorded short buffer segments just before and after the scheduled broadcast time of each selected program, which helps to ensure that the program is recorded in its entirety even if there is a slight discrepancy between the set-top box clock and the broadcast time of the program (Knudson, col. 1, lines 65).

In Applicants' claims 7, 16, 49, and 54, the predetermined amount of time after the scheduled end time of the program is provided so that, in the event the end of program notifier is not received, the entire program can still be recorded, without wasting valuable storage space. With Knudson, the user has no idea how much of a buffer to

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provide to the stop time. For example, a user would like to record a football game. The scheduled game time is from 4 to 7 PM. With unexpected overtime, the game ends at 8:30 PM. If the user pre-selects a 1/2 hour end buffer, he will miss the end of the game. If the user pre-selects 3 hours of buffer time, storage space is wasted and the user will not be able to record a different program till 10 PM. On a television program where extended record time is not typically required, any pre-selected buffer time wastes storage space, as it is not known *a priori* how long after the scheduled end time to record.

In an ideal system, where there is no chance of an end-of-program notifier being "lost", there would be no need to additionally bound the recording with the predetermined amount of time limitation as set forth in Applicants' claims. What this limitation is covering is the real world case of an end of program notifier not being received by the PVR, and the PVR recording endlessly until the entire storage medium is filled. This would be an extremely undesirable result. For instance, no other programs already set up to record at a later time could be recorded due to lack of storage space. Also, a PVR system, if not designed properly, may not gracefully handle the recording of a program while it runs out of storage space.

The end-of-program notifier could be lost due to many circumstances, for example:

1. the headend or content program provider system could omit, forget, or have a hardware or software error preventing the notifier from being transmitted;
2. the notifier message could be lost in the communication and distribution path between two or more

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pieces or modules in the generating system (inter process software communication, various pieces of hardware, etc.) Messages do get lost in so-called "reliable" communication systems;

3. the notifier message could be lost in the communication system between the headend and the set-top or PVR. Impairments in the transmission system, including random noise, impulse noise, ingress and many other types, do effect and actually prohibit perfectly reliable communication to the set-top. In fact, there are specifications on the set-top that allow a certain number of bit errors per unit time (resulting in garbled and thus unusable messages, such as an end of program notifier);

4. even if the notifier message is received by the set-top correctly, this message must make it through many layers of the terminal before it reaches the PVR application. Set-top software is designed to not lose any messages, but since the software is realtime and there are many high priority software tasks competing for processor execution bandwidth, it is conceivable that a message could be dropped somewhere in this software task.

Therefore, Applicants' claimed invention allows the PVR the flexibility of not waiting for the end of program notifier absolutely, but gating the recording length on a predetermined amount of time after its scheduled stop time. In other words, a fail-safe algorithm is provided in case the notifier is not received, thus preventing the scenario where the program (and whatever would follow it) is recorded endlessly until the storage medium is completely consumed.

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Applicants' claimed combination of providing an end time as well as an end of program notifier, and waiting for receipt of the end of program notifier for a predetermined amount of time after the end time before stopping recording if no end of program notifier is received is neither disclosed nor suggested by the combination of Bodkin and Knudson. Similar arguments apply to claims 35 and 45, which have been rejected based on the combination of Bodkin and Barton.

Similarly, Bodkin does not disclose or remotely suggest the subject matter of Applicants' claims 8, 17, 50, and 55, which specify that additional information is provided to the PVR indicating that the program supports end of program notifiers, thereby configuring the PVR to terminate the recording based on the notifiers. The Examiner cites to page 12 of Bodkin as disclosing this subject matter. However, page 12 of Bodkin makes no mention of configuring the HDR in response to additional information. In fact, no additional information is provided in Bodkin to notify the HDR that the program being recorded supports the skip signals of Barton.

The Examiner has rejected independent claims 19 and 23 as being anticipated by Schindler. Claims 19 and 23 specify that the recording of reruns is automatically prevented based on EPG data associated with the television signals. The Examiner cites to "col. 17, lines 57-, Fig. 13, '1310'" as disclosing the preventing the recording of reruns based on EPG data (Office Action, pages 4-5). Column 17, beginning at line 57 of Schindler describes a television schedule 1310. No mention is made of using this schedule to prevent recording of reruns. Schindler does disclose the

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use of a database to keep track of what has been recorded, in order to prevent duplicate recordings (Col. 4, lines 16-19). The use of a database to track recordings in order to prevent the recording of reruns is inefficient compared to the use of EPG data to prevent recording of reruns as claimed by Applicants. With Applicants' claimed invention, no separate database is required in order to keep track of what has already been recorded and the implementation of Applicants' invention is therefore simpler and less expensive.

Schindler does not disclose or remotely suggest preventing the recording of reruns based on EPG data, as set forth in Applicants' claims 19 and 23.

Claims 27 and 37 are amended to include the subject matter of claims 29 and 39, respectively. The subject matter of claims 29 and 39 was rejected by the Examiner as being anticipated by the combination of Bodkin and Barton.

Amended claims 27 and 37 now specify that recording of a program is suspended when non-program specific content is received, based on ATVEF triggers. During the time when the recording is suspended, the non-program specific content is stored to a location that is separate from the location where the program is being recorded.

The Examiner indicates that Barton discloses that the non-program specific content is stored separate from the program specific content. Applicant respectfully disagrees with the Examiner's application of Barton. Barton discloses that advertisement material that is loaded onto the system may be displayed either before or after any program material (para. 0015). Barton provides commercial teasers at the beginning of a commercial break so that the user is

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presented with a preview of the commercials before the user can decide whether to skip over playback of the commercial content (para. 0035-0037). The ads that are played back can be selected based on viewer preference (para. 0047). The program 802 is retrieved from the storage device 801 (Para. 0043). The ads are also stored on the storage device 801 (Para. 0044).

Barton discloses that both the program material and the ads are stored on the same storage medium, storage device 801. In Barton, the entire program broadcast, along with the commercial, is stored on the storage device 801. Only during playback is the commercial content of Barton manipulated. For example, during playback, a user using the system of Barton must physically select to skip over a commercial each time one appears in the program that is being played back.

In contrast, with Applicants' claimed invention, the user can play back the entire program, commercial free, without the need to skip over commercials (or other non-program specific content), during playback, since the program has been recorded to a separate location without any non-program specific content. With Applicants' claimed invention, the non-program specific content is removed from the recorded program and stored separately. As mentioned, for example, in claims 28 and 38, the non-program specific content that is stored separately from the recorded program may be a special announcement (e.g., breaking news), an emergency broadcast, or a commercial. Therefore, with Applicants' invention, the user can review the non-program specific content separate from the viewing of the program, if desired.

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Barton does not disclose suspending recording and during suspension of recording, storing the non-program specific content to a separate storage location, as set forth in Applicants' claims.

Applicants respectfully submit that Applicants' claimed invention is not anticipated by and would not have been obvious in view of the Bodkin, Schindler, Barton, Knudson, or any of the other prior art of record, taken alone or in combination.

Further remarks regarding the asserted relationship between Applicants' claims and the prior art are not deemed necessary, in view of the amended claims and the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

Withdrawal of the rejections under 35 U.S.C. § 102(a), 35 U.S.C. § 102(b), and 35 U.S.C. § 103(a) is therefore respectfully requested.

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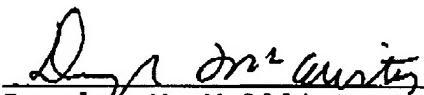
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Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,

  
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